and/or a different substrate than one or more n-way three dimensional microstructures, three-dimensional microstructure combiner/divider networks, electronic devices, and/or the like. In embodiments, one or more portions of one or more combiner/divider networks may be tapered on one or more axes, for example including a down taper disposed to pass one or more split electromagnetic signals and/or an up taper disposed to pass one or more processed electromagnetic signals. Such down tapers and up tapers may be used to interconnect to ports, on devices or signal processors, at a small pitch, and/or that are of a small size in relation to the coax, and/or that are close together while minimizing loss and maximizing power handling in the rest of the coaxial network.

According to embodiments, an apparatus may include one or more impedance matching structures. In embodiments, an impedance matching structure may include a tapered portion, for example a tapered portion of one or more three-dimensional coaxial microstructures, a down taper disposed to pass one or more split electromagnetic signals and/or an up taper disposed to pass one or more processed electromagnetic signals. In embodiments, an impedance matching structure may include an impedance transformer, an open-circuited stub and/or a short-circuited stub, and/or the like. In embodiments, one or more impedance matching structures may be on a different vertical tier and/or a different substrate of an apparatus relative to one or more n-way three dimensional microstructures, three-dimensional microstructure combiner/divider networks, electronic devices, portions thereof, and/or the like.

According to embodiments, an apparatus may include one or more phase adjusters. In embodiments, a phase adjuster may be disposed between two or more combiner/divider networks. In embodiments, a phase adjuster may be a portion of a jumper. In embodiments, a phase adjuster may include a wire bond jumper configured to change a path length. In embodiments, a phase adjuster may include a variable sliding structure configured to change a path length. In embodiments, a phase adjuster may include placing a fixed length coaxial jumper or may include a monolithic microwave integrated circuit (MMIC) phase shifter. In embodiments, one or more adjusters may be on a different vertical tier and/or a different substrate of an apparatus relative to one or more n-way three dimensional microstructures, three-dimensional microstructure combiner/divider networks, electronic devices, portions thereof, and/or the like. In embodiments, a phase adjuster may include any structure, including a transistor, a cut length of transmission line such as a laser trimmed line, a MMIC phase shifter and/or microelectromechanical system (MEMS) phase shifter, and/or the like. In some preferred embodiments, where the signal processor is a microwave amplifier, the phase shifter may be on an input side of the signal processor to minimize loss.

According to embodiments, an apparatus may include one or more transition structures. In embodiments, a transition structure may be configured to connect to one or more electronic devices of an apparatus, for example one or more signal processors. In embodiments, a transition structure may be configured to connect to one or more electronic devices by employing a connector, a wire, a strip-line connection, a monolithically integrated transition from coax to either a ground-signal-ground or microstrip connection and/or a coaxial-to-planar transmission line structure, and/or the like. In embodiments, one or more transition structures may be an independent structure. In embodiments, one or more transition structures may be on a different vertical tier and/or a different substrate of an apparatus relative to one or more n-way three dimensional microstructures, three-dimensional microstructure combiner/divider networks, electronic devices, portions thereof, and/or the like.

According to embodiments, an apparatus may include one or more portions constructed as a mechanically releasable module. In embodiments, a mechanically releasable module may be of one or more combiner/divider networks. In embodiments, a mechanically releasable module may include one or more combiner/divider networks, n-way three-dimensional coaxial microstructures, impedance matching structures, transition structures, phase adjusters, discrete and/or integrated passives devices such as capacitors, inductors, or resistors, sockets for hybridly placing devices, signal processors and/or cooling structures, and/or the like. In embodiments, a mechanically releasable module may include a heat sink, a signal processor and a three-dimensional microstructure backplane. In embodiments, a mechanically releasable module may be attached by, for example, one or more of a micro-connectors, a spring force, a mechanical snap connection, a solder, or a reworkable epoxy.

According to embodiments, an apparatus may include one or more combiner/divider networks having a three-dimensional microstructure, for example a three-dimensional coaxial microstructure, and one or more waveguide power combiners/dividers, spatial power combiners/dividers and/or electric field probes, and/or the like. In embodiments, one or more combiner/divider networks may include one or more antennas. In embodiments, two or more antennas may be disposed inside a common waveguide. In embodiments, one or more antennas may include an electric field probe to radiate a signal in and/or out of the device. In embodiments, one or more antennas may include an electric field probe which may be disposed inside a common waveguide. In embodiments, one or more waveguide power combiners/dividers, spatial power combiners/dividers and/or electric field probes may be cascading, on a different vertical tier and/or a different substrate of an apparatus relative to one or more n-way three dimensional microstructures, three-dimensional microstructure combiner/divider networks, electronic devices, portions thereof, and/or the like.

According to embodiments, a method may include splitting a first electromagnetic signal into one or more split electromagnetic signals. In embodiments, a method may include transitioning one or more split electromagnetic signals to one or more electronic devices, for example one or more signal processors. In embodiments, a method may include combining two or more processed electromagnetic signals from one or more electronic devices into a second electromagnetic signal. A method may include employing an apparatus in accordance with one or more aspects of embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

Example FIG. **1** illustrates one or more elements of an apparatus in accordance with one aspect of embodiments.

Example FIG. **2** illustrates an n-way three-dimensional coaxial microstructure in accordance with one aspect of embodiments.

Example FIGS. **3**A to **3**B illustrates an n-way three-dimensional coaxial combiner/divider microstructure in accordance with one aspect of embodiments.

Example FIG. **4** illustrates a cascading n-way three-dimensional coaxial combiner/divider microstructure in accordance with one aspect of embodiments.

Example FIGS. **5**A to **5**C illustrate an n-way three-dimensional coaxial combiner/divider microstructure in accordance with one aspect of embodiments.